WW-4130, LTE Mini PCIe Card/ w/ UART/RS232 Options

RoHS Compliant



Overview

WW-4130 4G PCI Express Mini Card supports the latest 4G LTE bands of **Verizon** cellular networks.

It is designed based on Thales/Gemalto/Cinterion LTE Cat1 wireless WAN technologies. Not only exhibits excellent hardware/radio frequency performance, it also supports rich software for fast product development. Following the PCI Express Mini Card standard, it could be easily applied in devices with PC architecture.

It is an ideal solution for the vast number of M2M and industrial IoT applications that are not dependent on speed but that requires the longevity and reliability of LTE networks as 2G and 3G phase out in decades ahead.

In addition to WWAN, features of (a) SIM card holder, and (b) modem control via UART TTL/RS232 are available for increasing your product value in just one card.

Applications

- Smart grid / IoT
- POS / Automatic Meter Reading
- School Bus / Transit / Taxi / Police
- Tracking & Tracing / Fleets Management
- Industrial PC / Netbook PC / Tablet PC / SBC
- Mobile Internet Terminal / Fixed Wireless Terminal
- Kiosk /Digital Signage / Intelligent Vending Machine
- Financial / Security / Payment / Inventory / Healthcare
- Remote Monitoring / Telematics / mHealth

Features

- Verizon 4G LTE bands support.
- PCI Express Mini Card standard V1.2 compliant
  - Communication via USB
  - Network status indication
  - Remote host wakeup support
- Powered by Thales/**Gemalto LTE Cat 1** module
  - ELS31-V (4G LTE bands 4,13)
  - Approvals: Verizon, FCC, GCF, IC, UL
- USB 2.0 High Speed (480Mbit/s) device interface, Full Speed (12Mbit/s) compliant
- Onboard SIM card holder (for Micro-SIM)
- Customer IMEI/SIM-Lock as variant
- RLS Monitoring (Jamming detection)
- Rich driver/RIL support for various platforms
- Rich internet communication protocol support
- Embedded IP stack with IPv4/ IPv6 support
- Internet Services TCP/UDP server/client, DNS, Ping, HTTP, SMTP, FTP client
- The latest TLS/SSL engine provides secure and reliable TCP/IP connectivity.
- **eSIM** support, BIP (Bearer Independent Protocol)
- SIM Access Profile (SAP)
- Abnormal temperature protection of module board (out of -40~90℃)
- Option of UART TTL or RS232 modem control
- Industrial grade operating temperature

Technical Specifications

Wireless WAN

Frequency bands	4G LTE Bands 4,13 1700/2100 (AWS), 700MHz (4G)
Output power	Class 3

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	● (+23dBm +/-2dB) for LTE AWS, LTE B4 ● (+23dBm +/-2dB) for LTE 700, LTE FDD B13
LTE Features 3GPP Release 9	DL max. 10.2 Mbps, UL max. 5.2 Mbps UE CAT 1 supported
SMS	Point-to-point MT and MO Text mode Storage in mobile equipment
AT commands	Hayes 3GPP TS 27.007, TS 27.005
SIM UICC	SIM Application Toolkit: SAT Release 99 Support of 3 V and 1.8 V SIM/USIM cards
USB	USB 2.0 High Speed (480Mbit/s) device interface. Full Speed (12Mbit/s) compliant

Windows Platform support

USB driver for Windows Vista, 7, 8, 10

Linux/Android Platform support

Compatible with standard USB kernel drivers
RIL driver support up to 8.0

Electrical Data

Power Supply (VCC)	3.3 ± 0.3 V

Environmental Data

Operating temperature (board temperature of ELS31-V)	-40 ~ 90 ℃*+&: -30 ~ 85 ℃& (normal) -40 ~ -30 ℃*& (extended) 85 ~ 90 ℃*& (extended)

* Extended operation allows normal mode speech calls or data transmission for limited time until automatic thermal shutdown takes effect. Within the extended temperature range (outside the normal operating temperature range) the specified electrical characteristics may be in- or decreased.

& Because of temperature measurement uncertainty, a tolerance of ±3°C on the thresholds may occur.

+ Airflow: min. 1 m/s

Mechanical Data

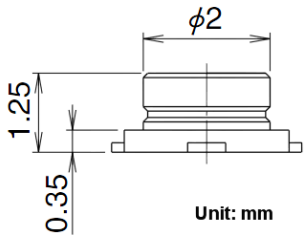
30 x 50.9 x 4.65 **(mm)**



Weight

WW-4130V	7.5 g

RF Connector: I-PEX Receptacle



Note. Corresponding plug cable: diameter of 1.13mm

52-Pin Gold-Finger Definition

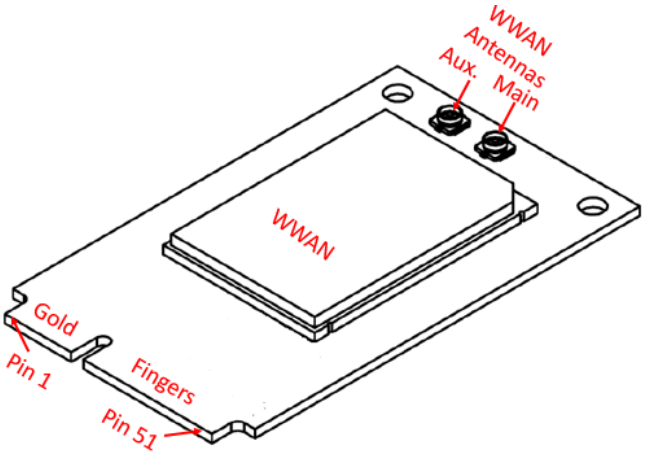
Name	PINs	Function	I/O
VCC	2,24,39,41,52	3.3V power supply, Min 3.0V, Max 3.6V	Input
GND	4,9,15,18, 21,26,27,29,34,35,37,40,43,50	Ground	Input
USB_DM	36	USB data signal minus	I/O
USB_DP	38	USB data signal plus	I/O
LED	42	Open Drain active Low WWAN status indicator;	Output
SIM_VCC	8!	Power for SIM card	Output
SIM_DATA	10!	SIM data signal	I/O
SIM_CLK	12!	SIM clock signal	Output
SIM_RESET	14!	SIM reset signal	Output
nWAKE^V	1	Open drain, active low wakeup signal	Output
TXD#&	3	UART/RS232 data into card	Input
RXD#&	5	UART/RS232 data out of card	Output
RTS#&	17	UART/RS232 request to send	Input
CTS#&	19	UART/RS232 clear to send	Output
NC	Remaining pins	No connection	-

! Leave these pins open if they are not used
& Optional, default is NC
# Reserved pins used, proprietary
V No connect (NC) for specified model

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1	nWAKE	VCC	2
3	TXD	GND	4
5	RXD	NC	6
7	NC	SIM_VCC	8
9	GND	SIM_DATA	10
11	NC	SIM_CLK	12
13	NC	SIM_RESET	14
15	GND	NC	16
17	RTS	GND	18
19	CTS	NC	20
21	GND	NC	22
23	NC	VCC	24
25	NC	GND	26
27	GND	NC	28
29	GND	NC	30
31	NC	NC	32
33	NC	GND	34
35	GND	USB_DM	36
37	GND	USB_DP	38
39	VCC	GND	40
41	VCC	LED	42
43	GND	NC	44
45	NC	NC	46
47	NC	NC	48
49	NC	GND	50
51	NC	VCC	52

Outlook



Order Information

WW-4130X, where X = Q, S, V as shown below

Feature \ Model	Q	S	V	W
USB	Y	Y	Y	Y
TTL/RS232	TTL	RS232	-	-
Pin 1 (nWAKE)	Y	Y	Y	NC

*This document is subject to change without notice.

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